

AMENDMENTS TO THE CLAIMS

The following listing of claims replaces all prior versions and listings of claims in the above-identified U.S. patent.

LISTING OF CLAIMS

1. (currently amended) A method of fabricating a hermetic electrical feedthrough comprising:

providing an unfired ceramic sheet having upper and lower surfaces;

forming an intermediate blind hole in said ceramic sheet extending from said upper surface toward said lower surface;

inserting a wire into said blind hole;

firing said sheet and wire to a temperature sufficient to sinter the sheet material and cause it to form a hermetic compression seal around said wire; and

removing sufficient sheet material from said sheet lower surface to expose said wire thus forming a through hole containing said wire.

2. (original) The method of claim 1 wherein said ceramic sheet is formed of material comprised of at least 99% aluminum oxide.

3. (original) The method of claim 1 wherein said ceramic sheet after said firing and material removal steps is less than 40 mils thick.

4. (original) The method of claim 1 wherein said ceramic sheet after said firing and material removal steps is less than 15 mils thick.

5. (original) The method of claim 1 wherein said wire is formed platinum.

6. (original) The method of claim 1 wherein said wire has a diameter of less than 20 mils.

7. (original) The method of claim 1 wherein said wire has a diameter of less than 10 mils.

8. (currently amended) A method of forming multiple hermetic electrical feedthroughs comprising the sequential steps of:

forming multiple intermediate blind holes in an unfired sheet of ceramic material, each hole extending from an upper sheet surface to a hole floor spaced from the lower surface of said sheet;

inserting a wire into each hole so that the lower end of each wire is supported on a hole floor;

firing said sheet and wires to sinter and shrink said ceramic material to form a hermetic compression seal around each wire; and

removing ceramic material from said sheet lower surface to said hole floors to expose the lower ends of said wires thus forming through holes containing said wires.

9. (original) The method of claim 8 including a further step of lapping a sheet surface so that the ends of said wires are flush with the surface.

10. (original) The method of claim 8 including a further step of dicing said sheet to form multiple dies each including multiple hermetic electrical feedthroughs.

11. (original) The method of claim 8 wherein said ceramic material is from the group comprised of aluminum oxide and zirconia.

12. (original) The method of claim 8 wherein said ceramic material comprises at least 99% aluminum oxide.

13. (original) The method of claim 8 wherein each of said wires is formed of a material from the group including platinum, titanium, gold, palladium, tantalum, niobium.

14. (original) The method of claim 8 wherein said wires are formed of substantially pure platinum.

15. (original) The method of claim 8 wherein said sheet after lapping has a thickness of less than 15 mils.

16. (original) The method of claim 8 wherein at least some of said wires have a diameter of less than 10 mils.

17. (original) The method of claim 8 wherein said firing step includes subjecting said sheet to a temperature sufficient to sinter the ceramic material.

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37. (currently amended) A method of fabricating a hermetic electrical feedthrough comprising:

providing an unsintered ceramic sheet having upper and lower surfaces;

forming one or more intermediate blind holes in said ceramic sheet extending from said upper surface toward said lower surface;

inserting a wire in each of said one or more blind holes;

firing said sheet and wire to a temperature sufficient to sinter the sheet material and cause it to form a hermetic compression seal around said wire; and

removing sufficient sheet material from said sheet lower surface to expose said wire thus forming a through hole containing said wire,

wherein said firing occurs by ramping up to a first temperature at a first heating rate; then ramping up to a second temperature higher than the first temperature at a second heating rate different from the first heating rate.

38. (previously presented) The method of claim 37, wherein the first temperature is 600 C, the second temperature is 1600 C, the first heating rate is 1 C/minute and the second heating rate is 5 C/minute.

39. (currently amended) The method of claim 37, wherein said ~~heating~~ ramping up to a second temperature is followed by a dwell interval and a cool-to-room-temperature interval.

40. (previously presented) The method of claim 37, wherein said wire is a platinum wire.

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